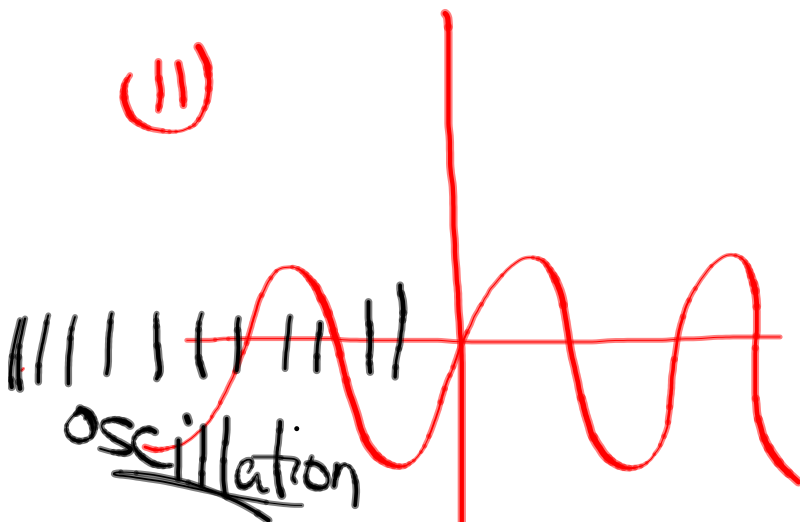


2.1 hw

(11)



www.calculus-help.com

a) $\lim_{x \rightarrow 0^-} f(x) = 0$

b) $\lim_{x \rightarrow 0^+} f(x) = 0$

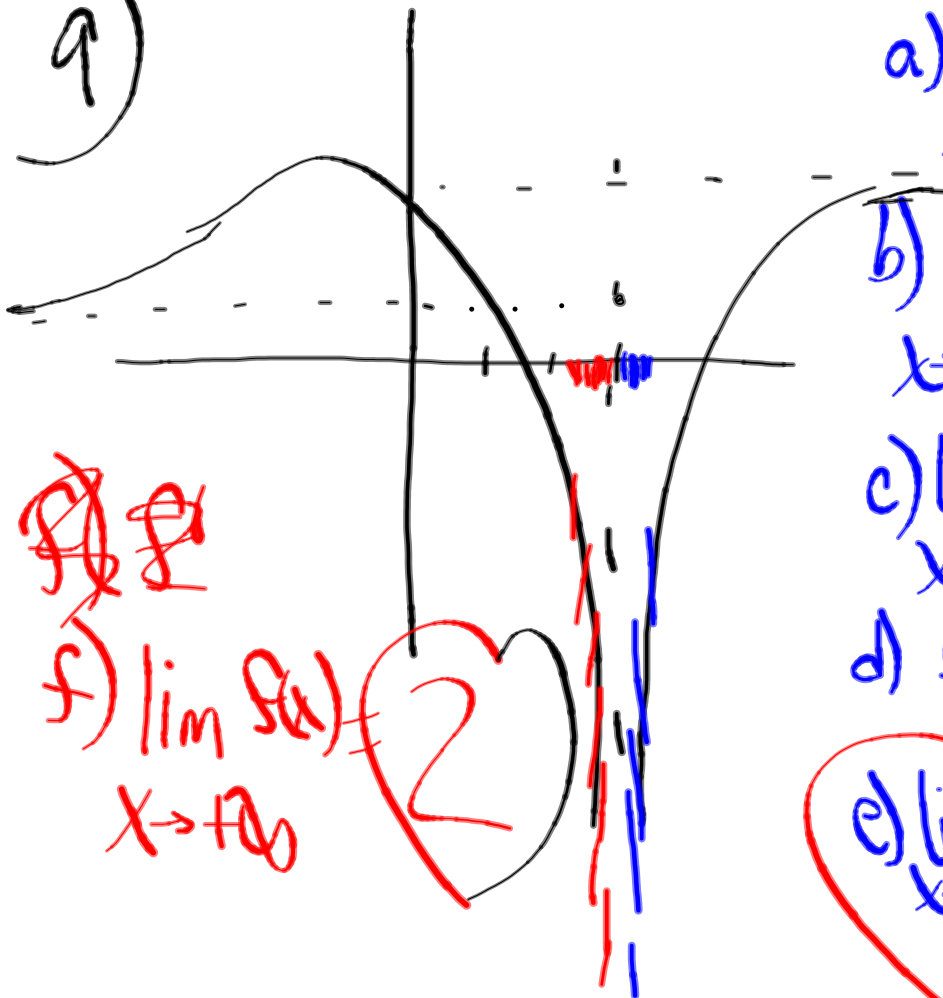
c) $\lim_{x \rightarrow 0} f(x) = 0$

d) $f(0) = 0$

e) $\lim_{x \rightarrow -\infty} f(x) =$

f) $\lim_{x \rightarrow +\infty} f(x) =$ DNE

9)



a) $\lim_{x \rightarrow 3^-} f(x) = -\infty$

b) $\lim_{x \rightarrow 3^+} f(x) = -\infty$

c) $\lim_{x \rightarrow 3} f(x) = -\infty$
 "does not exist"

d) $f(3) = 1$

e) $\lim_{x \rightarrow -\infty} f(x) = 1$

~~f) $\lim_{x \rightarrow +\infty} f(x) = 2$~~

f) $\lim_{x \rightarrow +\infty} f(x) = 2$

16) $\checkmark f(0) = f(2) = 1$

$\checkmark \lim_{x \rightarrow 2^-} f(x) = +\infty$

$\lim_{x \rightarrow 2^+} f(x) = 0$ \checkmark

$\lim_{x \rightarrow -1^-} f(x) = -\infty$ \checkmark

$\lim_{x \rightarrow -1^+} f(x) = +\infty$ \checkmark

$\lim_{x \rightarrow +\infty} f(x) = 2$

$\lim_{x \rightarrow -\infty} f(x) = +\infty$

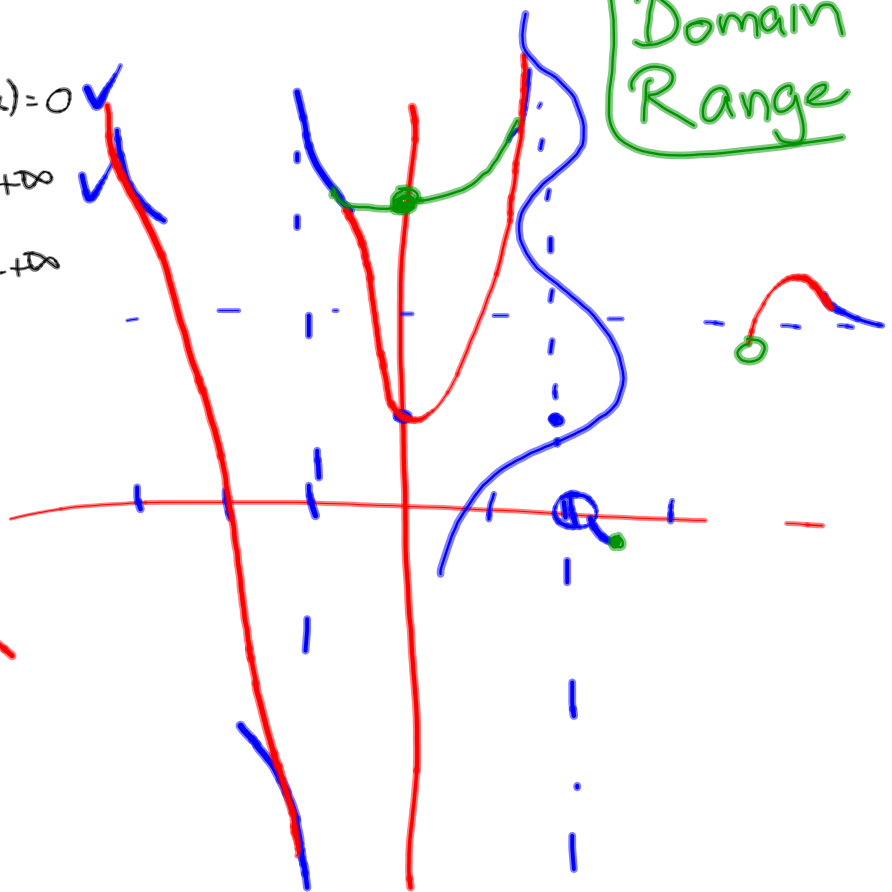
HA

CLUES

Vertical
Asymptote

END BEHAVIOR

Domain
Range



16*

$$f(-2)=1$$

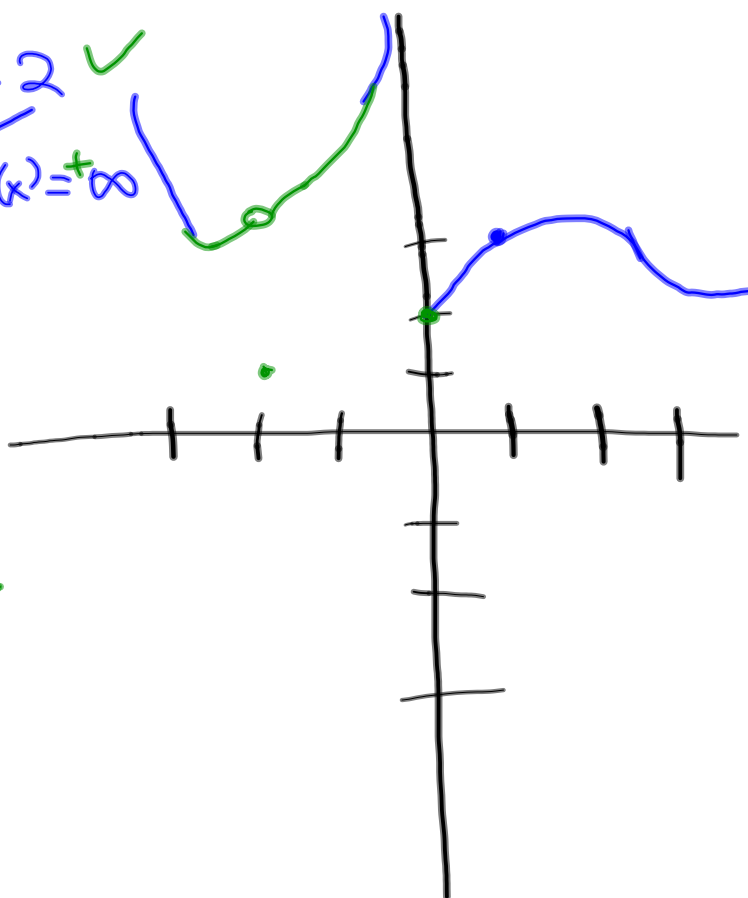
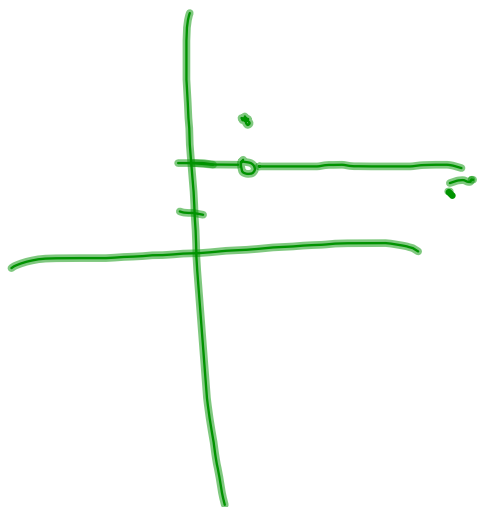
$$f(1)=3 \checkmark$$

$$\lim_{x \rightarrow 0^-} f(x) = +\infty \checkmark$$

$$\lim_{x \rightarrow 0^+} f(x) = 2 \checkmark$$

$$\lim_{x \rightarrow +\infty} f(x) = 2 \checkmark$$

$$\lim_{x \rightarrow -\infty} f(x) = +\infty$$



29)

$$\lim x \sin\left(\frac{1}{x}\right)$$

$$x \rightarrow +\infty$$

$$\lim_{x \rightarrow \infty} \frac{1}{x} = 0$$

$$\text{let } y = \frac{1}{x}$$

$$yx = 1 \\ x = \frac{1}{y}$$

$$y = \frac{1}{x} \\ xy = 1 \\ x = \frac{1}{y}$$

$$\lim_{y \rightarrow 0^+} \left(\frac{1}{y}\right) \sin(y) = 1$$

2.1/29

$$\lim_{x \rightarrow +\infty} x \sin\left(\frac{1}{x}\right)$$

$x \rightarrow t$

$$t = \frac{1}{x}$$

$$xt = 1$$
$$x = \frac{1}{t}$$

$$\lim_{t \rightarrow 0} \frac{1}{t} \sin(t)$$

$$\lim_{x \rightarrow +\infty} t = \lim_{x \rightarrow +\infty} \frac{1}{x} = 0$$

$$\lim_{x \rightarrow 0} \frac{\sin(x)}{x} = 1$$

